UNITED NATIONS

ECONOMIC COMMISSION
FOR LATIN AMERICA
AND THE CARIBBEAN - ECLAC

Distr.
GENERAL

LC/G.1591(SES.23/17)
23 February 1990

ORIGINAL: ENGLISH

Twenty-third session
Caracas, Venezuela, 3-11 May 1990

MEETING TO MARK THE END OF THE INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE

DRINKING WATER SUPPLY AND SANITATION IN LATIN AMERICA AND THE CARIBBEAN SINCE PUNTA DEL ESTE

89-12-1917

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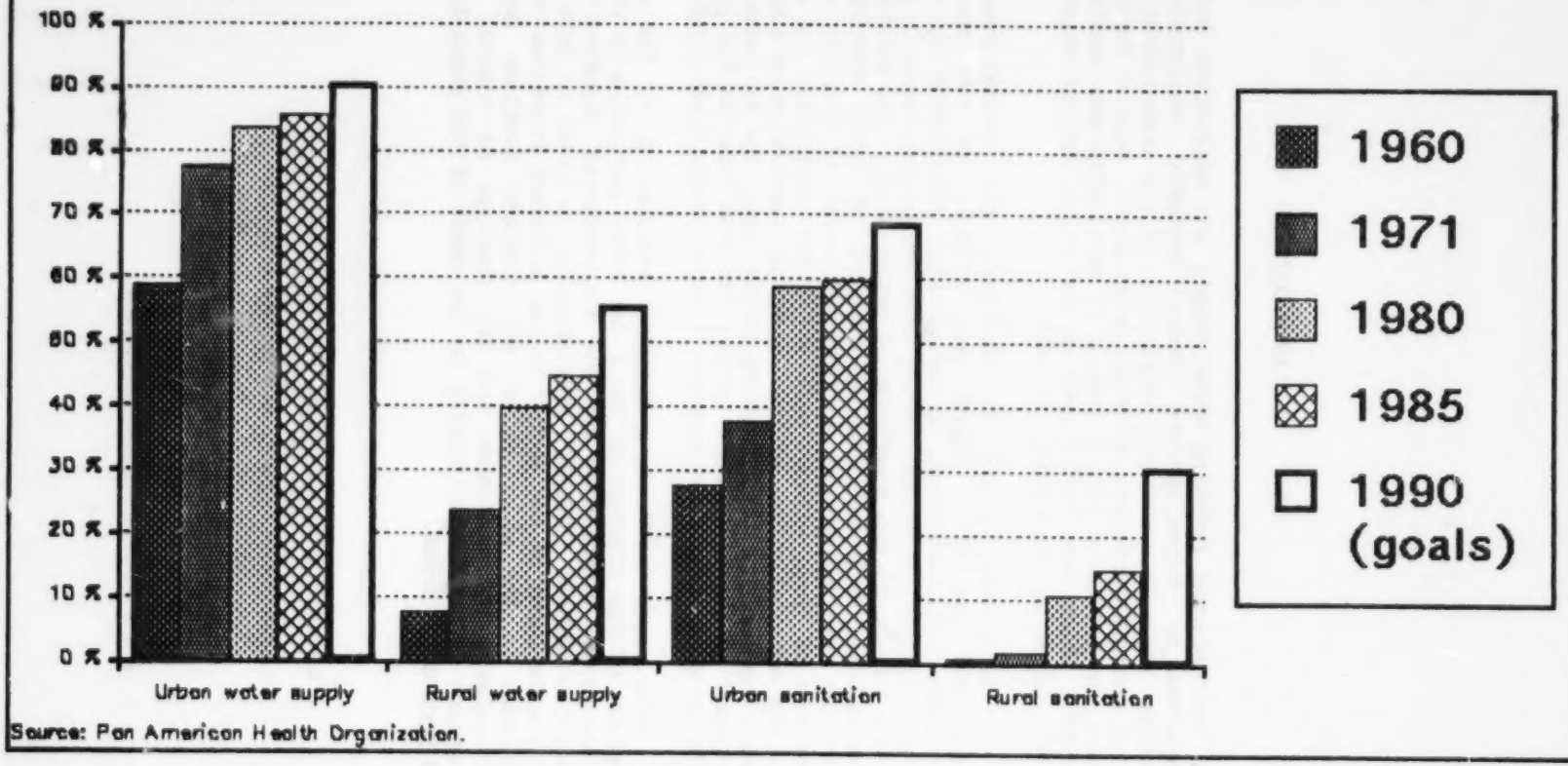
INTRODUCTION

The International Drinking Water Supply and Sanitation Decade (IDWSSD) was proclaimed by United Nations General Assembly resolution 35/18 dated 10 November 1980. This was the culmination of the commitments made at Habitat: United Nations Conference on Human Settlements, held at Vancouver in 1976, to ensure the provision to all people of safe water and sanitation by 1990, if possible, which were reconfirmed at the United Nations Water Conference held at Mar del Plata, Argentina, in 1977.

In Latin America and the Caribbean, the International Drinking Water Supply and Sanitation Decade was preceded by two decades of special programmes for investment in and general development of water supply and excreta disposal services. During that period considerable progress was made in the region in the provision of water supply and sanitation (figure 1). Nevertheless, many millions of citizens of Latin American and Caribbean countries remained without a protected source of drinking water supply, and even more of them, without safe and decent facilities for excreta disposal. This was especially true of the low-income population of both urban and rural areas; however, the programmes developed under the Alliance for Progress and continued in the 1970s were largely directed towards the provision of urban drinking water supply and sewerage through centralized piped systems.

This paper contains a critical examination of the sector since the adoption of the Charter of Punta del Este, particularly within the context of the goals established for the International Drinking Water Supply and Sanitation Decade (IDWSSD). Consideration is given to both the achievements and the failures of the sector in the different countries of the region with reference to the wider social and economic problems facing the region, particularly the recession and the shortage of capital accompanying it. Attention is drawn specifically to the needs of the population of poor rural and peri-urban areas.

Figure 1
Latin America and the Caribbean:
Population with Water Supply and Sanitation, 1960-1990



Source: Pan American Health Organization.

I. THE DEVELOPMENT OF WATER SUPPLY AND SANITATION IN LATIN AMERICA AND THE CARIBBEAN FROM PUNTA DEL ESTE TO 1980

1. The 1960s: The first water supply and sanitation decade

In 1960, only 59% of the urban and 8% of the rural population of Latin American and Caribbean countries had access to a protected drinking water supply, and adequate sewerage and excreta disposal services were available to only 28% of the urban population and 1% of the rural population.1/ In many countries of the region, the level of service was very much lower (table 1). Such low levels of provision of drinking water supply and sanitation were accompanied by serious health problems. In 15 of the 20 Latin American countries for which data were available, gastritis, enteritis, and other diarrheal diseases, were among the principal causes of death, and in six of them diarrheas were the leading cause of death. Other diseases, including typhoid fever and dysenteries, which are frequently either waterborne or spread because of an insufficient supply of water and lack of cleanliness, contributed significantly to both morbidity and mortality.2/

In 1961, the governments of the region, acting under the Charter of Punta del Este, committed themselves to provide drinking water supply and sewerage services to 70% of the urban and 50% of the rural population by 1971.3/ As a result of those commitments and assisted by strong economic growth which averaged 5.7% annually between 1960 and 1970,4/ Latin American and Caribbean countries invested an estimated US$6.1 billion, at constant 1985 prices, in the development of drinking water supply and sewerage facilities during the 1960s (figure 2).5/ The bulk of the financing —some 64%— came from national sources, but external funds were of considerable significance, providing the remaining 36% of the total investment in the sector. The size of the share of external funds in total investments during the 1960s has not been equalled since. Multilateral lending institutions--the Inter-American Development Bank (IDB) and the International Bank for Reconstruction and Development (IBRD)— were the most important sources of external financing, but considerable assistance was also available from bilateral sources and from the United States, in particular.

Table 1

LATIN AMERICA AND THE CARIBBEAN: POPULATION WITH DRINKING WATER SUPPLY AND SANITATION SERVICES, AROUND 1960

(Population in millions)

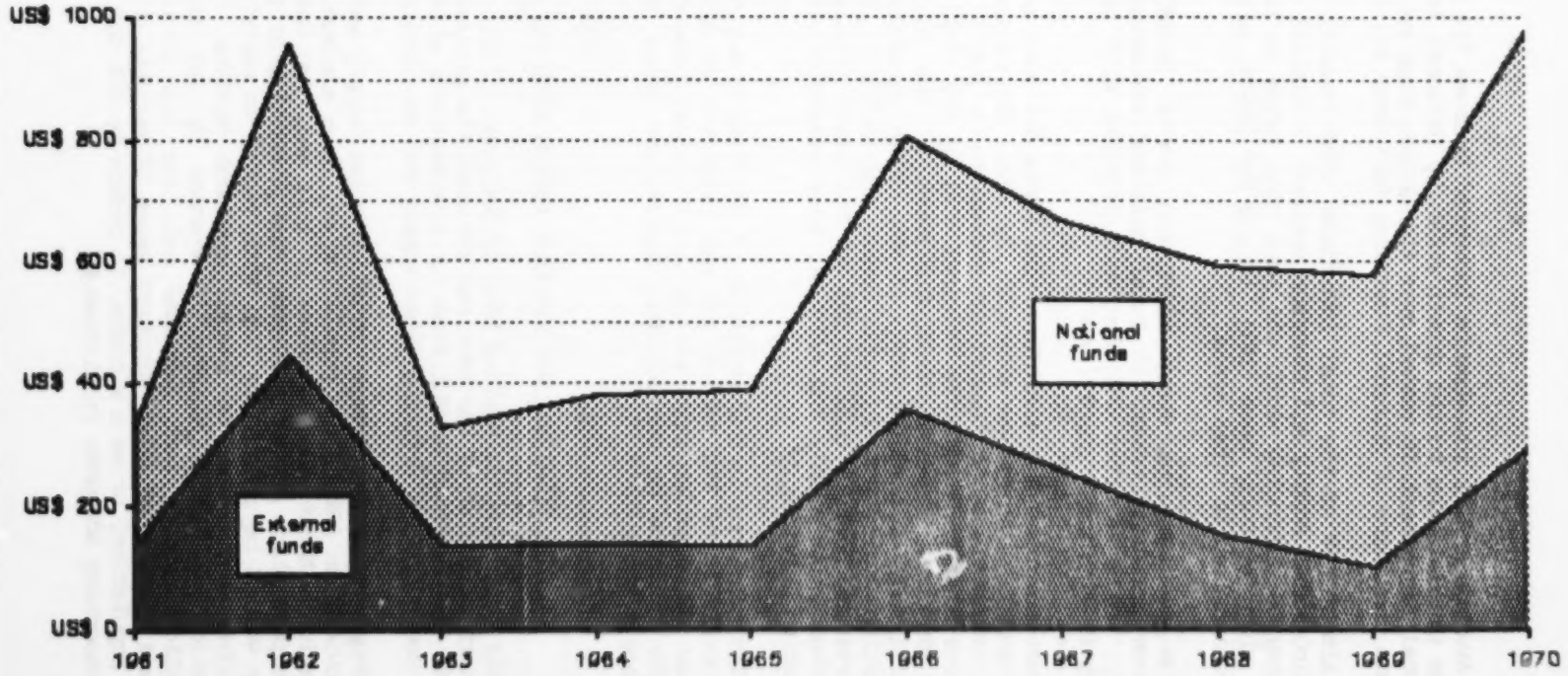
Country	Drinking water supply						Sewerage systems			
	Urban (house connections)		Urban (public standposts)		Rural (house connections)		Urban (house connections)		Rural (house connections)	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Argentina	10.146	65.3	3.520	25	0.075	1.3	6.534	42.1	0	0
Bahamas	0.012	25.9	n/a	n/a	0.007	11.1	n/a	n/a	n/a	n/a
Belize	0.029	63.5	n/a	n/a	0	0	n/a	n/a	n/a	n/a
Bolivia	0.750	57	0.370	28	0.020	0.8	0.450	40.4	n/a	n/a
Brazil	17.700	55	9.700	30	n/a	n/a	15.249	54.5	n/a	n/a
Chile	3.589	73.6	0.820	16	0.400	16.1	2.899	59.5	0	0
Colombia	4.674	78.8	0.780	11	1.902	23.2	3.645	61.4	1.193	14.5
Costa Rica	0.412	97.9	0.010	2	0.279	36.4	0.121	28.7	0	0
Cuba	2.182	56.6	n/a	n/a	0.475	15.2	1.317	32.4	n/a	n/a
Dominican Republic	0.550	57	0.270	28	1.041	52.4	0.158	17.2	n/a	n/a
Ecuador	0.726	58.2	0.420	27	0.057	1.8	0.664	53.2	n/a	n/a
El Salvador	0.483	50.2	0.270	26	0.043	2.6	0.362	39.0	n/a	n/a
Guatemala	0.366	42.3	0.490	41	0.337	12.0	0.255	29.5	0.001	0
Haiti	0.101	25.1	0.260	36	0	0	0	0	0	0
Honduras	0.212	34.3	0.220	46	0.103	7.5	0.126	20.4	0	0
Jamaica	n/a	n/a	n/a	n/a	n/a	n/a	0.059	10.8	n/a	n/a
Mexico	11.401	67.5	5.600	30	7.067	43.0	15.102	70.4	n/a	n/a
Nicaragua	0.215	37.9	0.240	41	0.003	0.3	0.092	16.2	0	0
Panama	0.390	83	0.060	13	0.014	2.1	0.321	59.0	n/a	n/a
Paraguay	0.172	27.6	0.210	32	0	0	0.150	24.0	0	0
Peru	2.900	59.5	1.970	21	0	0	2.500	51.3	0	0
Trinidad & Tobago	n/a	n/a	n/a	n/a	0.092	16.1	0.048	n/a	n/a	n/a
Uruguay	1.290	73.7	0.380	16	0.015	2.4	0.889	50.8	0	0
Venezuela	2.384	54.5	1.660	35	0.461	15.8	1.318	30.2	0.067	2.3

Source: Pan American Health Organization and World Health Organization, various publications.

n/a = not available.

Figure 2

Latin America and the Caribbean: Sources of Investment Funds for Water Supply and Sanitation Sector, 1961-1970 (millions US dollars at constant 1985 prices)



Source: on the basis of information in Annual Report of the Director, 1971, PAHO/WHO, 1972, Official Document No. 116.

Average annual investments increased by some 51% between the two halves of the decade owing to the growth shown by national investments, whose share in total investment increased over the decade from an average of 58% to 68%, whereas the share of external financing fell from 42% to 32%.

Almost 85% of the total investment went towards the expansion of urban drinking water supply and sewerage systems. A similar urban bias can be seen in external financing which was more than twice as high for urban projects (40%) than for rural ones (18%). During the 1960s, 92% of all external funds were channelled to urban areas.

On average, for every additional person benefiting from sanitation services in rural areas, 15 rural dwellers benefited from drinking water supply, while 24 urban dwellers were provided with sanitation services and almost 49 with water supply.6/

Not surprisingly, therefore, the Punta del Este goal for urban drinking water supply coverage was exceeded. By 1970, 78% of the urban population had house connections or reasonable access to a public tap, a figure which compares favourably with the original goal of 70% (table 2). The expansion of other services, however, fell far short of the goals set. Only 38%, as compared with a goal of 70%, of the urban population was provided with sanitation facilities. In rural areas, the shortfall was even greater. Only 24% compared with a goal of 50% of the rural population had access to a protected water supply and only 2%, also compared with a goal of 50%, had sanitation services.7/

The imbalance in the expansion of services shown in the 1960s remained a characteristic of the sector and was reflected in associated developments, such as the creation of a strong institutional base for urban water supply and the reliance on conventional centralized water supply and water-borne sewerage systems.

2. The 1970s and the Ten-Year Health Plan for the Americas

At their third Special Meeting held in Santiago, Chile, in October, 1972, the Ministers of Health of the Americas reviewed the progress made up to 1971 and adopted the Ten-Year Health Plan for the Americas which provided for, inter alia, new goals for drinking water supply and sanitation.

Under the new programme, drinking water supply was, for urban areas, to be provided to 80% of the population or, as a minimum, to that half of the population without water services in 1971 and, for the rural sector, to 50% of the population or, as a minimum, the proportion of the population lacking supply was to be reduced by 30%. With regard to excreta disposal, the goals for urban areas were to install sewerage systems for 70% of the urban population or, as a minimum, to reduce by 30% the proportion of the population lacking such services and, for the rural sector, to install sewerage systems or other sanitary means of excreta disposal for 50% of the rural population, or as a minimum, to reduce by 30% the number of inhabitants not possessing adequate facilities.8/

Table 2

LATIN AMERICA AND THE CARIBBEAN: POPULATION WITH DRINKING WATER SUPPLY AND SANITATION SERVICES, AROUND 1970

(Population in millions)

Country	Drinking water supply						Sewerage & excreta disposal facilities			
	Urban				Rural (house connections and easy access)		Urban (house connections)		Rural (house connections and easy access)	
	House connections		Easy access							
	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Argentina	11.800	64	0.900	5	0.854	15	6.200	33	4.200	79
Bahamas	0.082	80	0.020	20	0.008	12	0.011	11	0.009	13
Barbados	0.085	81	0.015	14	0.138	100	0	0	0.135	100
Belize	0.024	37	0.015	24	0.008	15	0.002	3	n/a	n/a
Bolivia	0.542	32	1.009	60	0.083	2	0.343	20	0.127	4
Brazil	28.700	54	12.600	24	2.000	4	15.600	29	10.384	24
Chile	4.200	56	0.800	11	0.250	9	2.530	33	0.185	10
Colombia	9.493	73	2.000	15	4.100	48	7.817	60	0.800	8
Costa Rica	0.611	91	0.046	7	0.501	56	0.210	31	0.467	43
Cuba	4.258	82	0	0	1.770	60	1.394	27	n/a	n/a
Dominican Republic	0.934	55	0.291	17	0.271	11	0.277	16	1.444	54
Ecuador	1.498	63	0.312	13	0.276	7	1.383	58	n/a	n/a
El Salvador	0.540	39	0.446	32	0.583	27	0.524	38	0.393	18
Grenada	0.009	38	0.015	62	0.036	47	0.008	33	0.072	95
Guatemala	0.725	40	0.872	48	0.425	13	0.728	40	0.402	11
Guyana	0.200	87	0.029	13	0.197	38	0.066	28	0.450	92
Haiti	0.159	20	0.250	28	0.126	3	0.075	8	0.043	1
Honduras	0.475	68	0.213	31	0.190	10	0.420	60	0.173	9
Jamaica	0.475	94	0.031	6	0.368	26	0.063	12	1.249	92
Mexico	19.002	67	1.237	4	5.770	28	9.422	33	2.600	13
Nicaragua	0.296	33	0.227	25	0.120	10	0.287	32	0.090	8
Panama	0.611	90	0.066	10	0.067	9	0.482	70	0.520	69
Paraguay	0.162	19	0.025	3	0.088	6	0.131	16	0	0
Peru	3.580	49	0.620	9	0.840	12	3.500	48	1.000	16
Suriname	0.140	100	0	0	0.035	13	0.083	59	n/a	n/a
Trinidad & Tobago	0.297	83	0.059	17	0.666	95	0.181	51	0.679	96
Uruguay	2.060	94	0.130	6	0.128	17	1.215	55	0.066	13
Venezuela	5.400	72	1.520	20	2.283	65	3.200	43	1.535	45

Source: PAHO and WHO.

n/a = not available.

The achievement of these goals was estimated by PAHO in 1971 to require total investments on the order of US$9.7 billion, including some US$7.0 billion, or 72% of the total, for urban drinking water supply; about US$1.3 billion, 13% of the total, for rural water supply; about US$1.2 billion, 12% of the total, for urban sewerage and excreta disposal and US$0.3 billion, 3% of the total, for rural excreta disposal.9/

During the 1970s, despite the negative repercussions of the rise in oil prices, the average annual rate of growth of the economies of Latin America and the Caribbean was 5.5%.10/ This made it possible to increase investments in drinking water supply and sanitation facilities considerably. Total investments in the sector during the decade are estimated to have amounted to US$18.2 billion, at constant 1985 prices, which represents an almost 150% increase by comparison with the 1960s.11/

This increase was particularly noteworthy since external sources of financing did not keep pace with it, providing only a quarter of the funds invested. As in the 1960s, IDB and the World Bank provided the major part of the funds invested from outside the countries.

During the 1970s the increase in the number of people benefiting from drinking water supply was lower than in the 1960s, while the number of those provided with sewerage or excreta disposal facilities increased markedly. The expansion of facilities was much more even between urban and rural areas and between drinking water supply and sanitation. For every additional person benefiting from sanitation facilities in rural areas, two people benefited from drinking water supply, and almost seven people were provided with sanitation services and six with water supply in urban areas.12/

In general, a notable increase in the provision of drinking water supply and sewerage services was achieved in the region (table 3). The maximum goals adopted by the Ministers of Health were not met except in the area of urban drinking water supply. By 1980, 84% of the urban population had house connections or reasonable access to a public tap, as compared with the original goal of 80%; however, only 40% of the rural population had access to drinking water supply, as compared with a goal of 50%. The provision of sewerage systems in urban areas increased to include 59% of the population compared with the goal of 70% while the coverage of the rural population reached only 11% compared with the goal of 50%.

Table 3

LATIN AMERICA AND THE CARIBBEAN: POPULATION WITH DRINKING WATER SUPPLY AND SANITATION SERVICES, DECEMBER 1980

(Population in millions)

Country	Drinking water supply									Sewerage & excreta disposal facilities					
	Total population served (easy access or house connections)		Urban population served					Rural population served (easy access or house connections)		Total population served	(%)	Urban population served	(%)	Rural population served	(%)
	Number	(%)	House connections	(%)	Easy access	Total	(%)	Number	(%)						
Argentina	14.820	52	13.380	57	0.650	14.030	60	0 790	16	20.210	72	18.560	79	1.650	34
Barbados	0.227	91	0.077	77	0.001	0.078	78	0 149	100	0	0	0	0	0	0
Bolivia	2.050	37	0.600	24	1.130	1.730	70	0 320	10	1.040	19	0.920	37	0.120	4
Brazil	86.610	71	64.610	79	2.400	67.010	82	19.600	50	26.300	22	25.910	32	0.390	1
Colombia	23.110	90	11.840	71	4.160	16.000	97	7.110	77	16.370	63	16.000	97	0.370	4
Costa Rica	1.777	78	1.047	100	0	1.047	100	0.730	59	1.797	79	1.047	100	0.750	61
Chile	9.381	84	8.420	93	0.601	9.021	100	0.360	17	9.231	83	9.021	100	0.210	10
Dominican Republic	3.230	58	1.640	58	0.690	2.330	83	0.900	33	0.800	14	0.690	25	0.110	4
Ecuador	3.870	48	2.770	72	0.250	3.020	79	0.850	20	3.540	44	2.800	73	0.740	17
El Salvador	2.330	49	1.170	62	0.110	1.280	68	1.050	36	1.600	33	0.910	48	0.690	24
Guatemala	3.240	47	1.380	52	1.030	2.410	90	0.830	20	2.140	31	1.220	46	0.920	22
Guyana	0.506	58	0.264	100	0	0.264	100	0.242	40	0.587	68	0.264	100	0.323	54
Haiti	0.890	15	0.330	23	0.280	0.610	43	0.280	6	0.870	15	0.500	35	0.370	8
Honduras	2.220	60	0.700	53	0.560	1.260	95	0.960	41	1.290	35	0.670	50	0.620	26
Mexico	51.150	74	28.390	62	13.030	41.420	90	9.730	42	38.370	55	35.450	77	2.920	13
Nicaragua	1.050	38	0.970	66	0.010	0.980	66	0.070	5	0.500	18	0.500	34	0	0
Panama	1.560	80	0.840	85	0.110	0.950	96	0.610	63	1.360	69	0.780	79	0.580	60
Paraguay	0.620	20	0.450	34	0	0.450	34	0.170	9	2.610	82	1.090	83	1.520	82
Peru	8.130	47	5.820	52	1.100	6.920	62	1.210	20	5.880	34	5.860	53	0.020	0
Suriname	0.306	86	0.090	57	0.020	0.110	69	0.196	100	0.296	83	0.100	63	0.196	100
Trinidad & Tobago	0.993	91	0.550	88	0.073	0.623	100	0.370	79	0.973	89	0.623	100	0.350	74
Uruguay	2.360	81	2.190	90	0.160	2.350	96	0.010	2	1.470	51	1.440	59	0.030	6
Venezuela	12.670	84	9.800	78	1.200	11.000	87	1.670	68	7.470	50	7.090	56	0.380	15
Totals	233.100	68	157.328	70	27.565	184.893	82	48.207	41	144.704	42	131.445	58	13.259	11

Source: Estimated on the basis of information from the Pan American Health Organization and the Latin American Demographic Centre.

Note: The discrepancy in some totals is due to approximation in the decimal fractions and, in some cases, to lack of data.

II. THE INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE

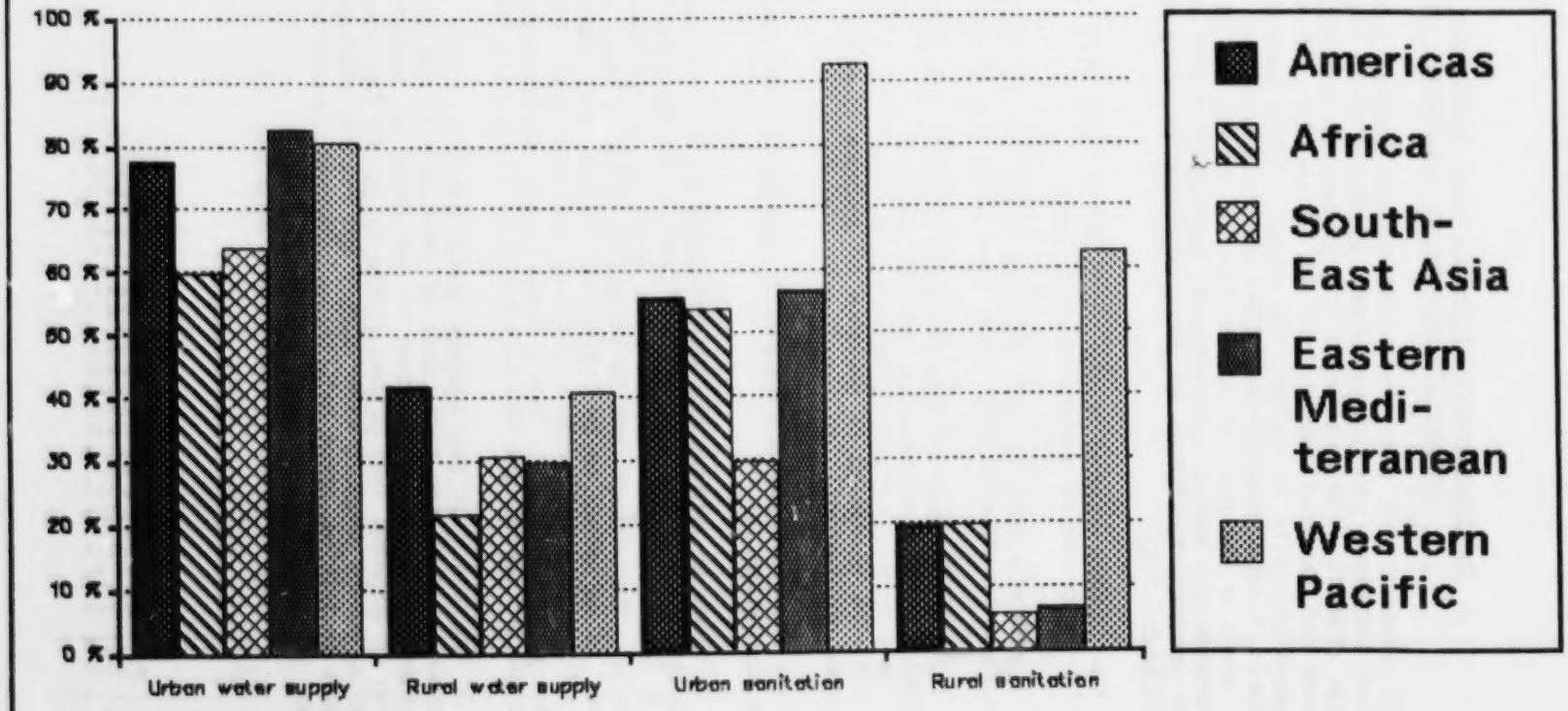
1. The situation in 1980

At the beginning of the International Drinking Water Supply and Sanitation Decade, as a result of the efforts made in the 1960s and the 1970s, the region was well provided with drinking water supply and sanitation facilities by comparison with other developing regions (figure 3). Relatively well organized drinking water supply and sanitation institutions were operating in most Latin American and Caribbean countries. Usually these institutions were organized within the central government and had responsibility for both drinking water supply and sanitation. There were exceptions, as in Brazil, where the institutions were organized within the states, and in Colombia, where the municipalities continue to be the most important providers of drinking water supply and sanitation services. In every country, however, the institutions directed their efforts primarily towards the satisfaction of the needs of the urban population through the use of high capital-cost, centralized water supply and sewerage systems.

In the urban areas of most Latin American and Caribbean countries, high levels of service had been achieved by 1980, particularly in the area of drinking water supply; however, the situation was not so satisfactory as regards the provision of sewerage, although the data available may understate the extent to which adequate individual excreta disposal systems existed. In rural areas, less progress had been made although in many countries of the region piped drinking water supply systems had been installed in the larger rural settlements; however, many rural people still lacked a safe source of drinking water and sanitary facilities for the disposal of excreta. Moreover, very few countries had any institutional support for the provision of services to their rural population.

In 1980 the provision of services varied considerably among the countries of the region, although all countries, in particular some in Central America and the Caribbean, had participated in the progress made in that connection over the preceding 20 years. Not surprisingly, countries with a higher proportion of rural population and lower incomes —Haiti, Paraguay, Bolivia and Nicaragua— recorded the poorest performance in this respect. Only in the island countries of the Caribbean and some Central American countries were high levels of service to be found for the rural population.

Figure 3
Water Supply and Sanitation, Served Population, Major World Regions, 1980



Source: World Health Organization.

2. The International Drinking Water Supply and Sanitation Decade: Its targets and estimated costs

By 10 November 1980 when the United Nations General Assembly proclaimed the period 1981-1990 the International Drinking Water Supply and Sanitation Decade (IDWSSD), the majority of Latin American and Caribbean countries had already set national targets for it. Since then, those targets have been adjusted primarily to reflect the impact of the generally negative overall economic climate. Nevertheless, they are still ambitious even though they may fall short of the goal set at the time of the Mar del Plata Conference: "... to provide all people with water of safe quality and adequate quantity and basic sanitary facilities by 1990, according priority to the poor and less privileged...".13/

The targets adopted by the countries of Latin America and the Caribbean for the Decade can be summarized as follows:

i) The provision of safe drinking water to 91% of the urban population --85% is to be supplied with house connections and 6% with easy access;

ii) The provision of safe drinking water to 56% of the rural population by supplying house connections and easy access;

iii) The provision of sewerage or excreta disposal services to 69% of the urban population;

iv) The provision of sewerage or excreta disposal services to 31% of the rural population.14/

In order to achieve the IDWSSD goals during the period 1981-1990, some 120 million additional people would need to be provided with drinking water supply and about 111 million with sewerage or excreta disposal services (table 4). The average cost of providing drinking water supply to one urban dweller is estimated to be US$160 and to one rural dweller, US$90. In the case of sewerage and excreta disposal services, the figures are US$133 and US$46, respectively.15/ These costs vary considerably among individual countries and depend upon the technological solutions actually used.

On the basis of the average costs and the targets established by the countries in 1980, the total cost of constructing new facilities to provide the degree of services proposed is estimated at somewhat less than US$26 billion at constant 1985 prices (table 5).16/ Of the total investment, some 61% would go for drinking water supply and 39% for sewerage and other excreta disposal facilities. About half these investments would be made in Brazil and Mexico.

Table 4

LATIN AMERICA AND THE CARIBBEAN: POPULATION TO BE SERVED WITH DRINKING WATER SUPPLY AND SANITATION FACILITIES BY THE END OF 1990, ON THE BASIS OF NATIONAL TARGETS

(Population in millions)

Country	Drinking water supply									Sewerage & excreta disposal facilities					
	Total population served (easy access or house connections)		Urban population served					Rural population served (easy access or house connections)		Total population served	(%)	Urban population served	(%)	Rural population served	(%)
			With house connections	(%)	Easy access	Total	(%)								
	Number	(%)						Number	(%)						
Argentina	23.624	72	22.670	80	0	22.670	80	0.954	21	21.789	66	19.836	70	1.953	43
Barbados	0.261	100	0.116	99	0.001	0.117	100	0.144	100	0.100	38	0.100	85	0	0
Bolivia	4.075	56	2.819	75	0.226	3.045	81	1.031	29	2.298	31	1.729	46	0.569	16
Brazil	128.393	85	104.107	90	3.470	107.577	93	20.816	60	72.118	48	71.718	62	0.400	1
Colombia	30.685	96	20.134	90	2.237	22.371	100	8.314	88	23.566	74	17.897	80	5.669	60
Costa Rica	2.733	93	1.544	98	0.032	1.575	100	1.158	85	2.869	98	1.575	100	1.294	95
Chile	12.707	98	11.120	100	0	11.120	100	1.587	85	10.140	78	10.060	90	0.080	4
Dominican Republic	5.837	84	2.862	68	1.263	4.125	98	1.712	62	2.986	43	1.936	46	1.050	38
Ecuador	7.538	70	5.032	82	0.184	5.216	85	2.323	50	7.538	70	5.216	85	2.323	50
El Salvador	5.303	82	1.987	77	0.387	2.375	92	2.928	75	4.884	75	2.581	100	2.303	59
Guatemala	5.730	62	3.785	98	0.077	3.862	100	1.868	35	6.156	67	3.862	100	2.294	43
Guyana	0.992	95	0.328	91	0.032	0.360	100	0.632	93	0.985	95	0.353	98	0.632	93
Haiti	4.959	66	0.841	37	0.977	1.818	80	3.142	60	4.959	66	1.818	80	3.142	60
Honduras	4.595	90	2.021	90	0	2.021	90	2.574	90	4.039	79	1.751	78	2.288	80
Mexico	67.763	76	52.329	81	3.230	55.559	86	12.204	50	53.507	60	47.161	73	6.346	26
Nicaragua	3.092	80	2.082	90	0.231	2.313	100	0.779	50	1.387	36	1.157	50	0.230	15
Panama	1.994	82	1.324	100	0	1.324	100	0.670	61	2.002	83	1.324	100	0.678	62
Paraguay	1.936	46	1.586	79	0.060	1.647	82	0.289	13	3.623	86	1.667	83	1.956	88
Peru	16.607	74	9.722	62	3.293	13.015	83	3.592	54	10.299	46	9.409	60	0.890	13
Suriname	0.396	98	0.192	100	0	0.192	100	0.204	96	0.367	91	0.171	89	0.196	92
Trinidad & Tobago	1.274	99	0.886	100	0	0.886	100	0.388	98	1.243	97	0.886	100	0.357	90
Uruguay	3.042	97	2.539	95	0.134	2.673	100	0.369	81	1.740	56	1.440	54	0.300	66
Venezuela	18.862	96	16.055	92	0.524	16.578	95	2.284	100	14.987	76	14.484	83	0.502	22
Totals	352.397	82	266.079	85	16.358	282.437	91	69.960	58	253.582	59	218.129	70	35.453	29

Source: Estimated on the basis of information from the Pan American Health Organization and the Latin American Demographic Centre.

Note: The discrepancy in some totals is due to approximation in the decimal fractions and, in some cases, to lack of data. This table has been calculated on the basis of information available on national coverage targets for 1990 and on the assumption that the only decline in the number of people provided with the services in question will occur in the area of drinking water supplied by public taps in urban areas.

Table 5

LATIN AMERICA AND THE CARIBBEAN: ESTIMATES OF TOTAL IDWSSD RELATED INVESTMENT COSTS

(Millions of US dollars at 1985 prices)

Subregion	Urban water supply		Rural drinking water supply	Sewage and excreta disposal		Total
	House connect.	Public taps		Urban	Rural	
Caribbean	386.1	90.5	205.8	588.4	122.1	1 392.9
Central America and Mexico	4 330.9	23.4	727.0	2 391.8	95.8	7 569.0
South America	9 030.9	72.7	772.3	6 131.4	665.8	16 673.2
Total	13 747.9	186.6	1 705.1	9 111.6	883.8	25 635.1

Source: ECLAC estimates.

Note: The discrepancy in some totals is due to approximation in the decimal fractions.

This estimate includes only the investments required for the expansion of services. It excludes the cost of operating and maintaining or rehabilitating existing or new systems. Since annual recurrent costs of this kind are usually estimated to be between 5% and 20% of the corresponding capital costs, a total investment of between US$27 and US$31 billion at constant 1985 prices would be required during the Decade in order to meet the targets and maintain the existing plant adequately.17/ Some other estimates of the total investment required to meet the goals of the Decade are somewhat higher. For example the World Health Organization, the Pan American Health Organization and the World Bank estimated that an investment of US$40 to US$60 billion at 1978 prices would be required between 1979 and 1990.18/

3. The achievements of the Decade

Because of the serious economic recession in the early 1980s, the International Drinking Water Supply and Sanitation Decade has been affected by unfavourable economic and fiscal conditions in most Latin American and Caribbean countries. The region entered into a serious recession in 1981, and as a consequence of the decline in the total gross domestic product of 1.2% in 1982 and 2.6% in 1983, government revenues have stagnated for most of the decade.19/ Not surprisingly, less financing was available for drinking water supply and the development of sanitation.

As a result of the recession, the progress made in increasing the coverage of drinking water supply and sewage or excreta disposal facilities, although substantial in a few countries, has been less than was expected in most of the region (table 6).

In the first three years of the Decade, coverage was increased somewhat as a result of projects begun before the onset of the period of recession. The proportion of the urban population served with drinking water supply rose from 84% to 86% and of that served with sewerage, from 59% to 61%. The coverage of the rural population by drinking water supply services rose from 40% to 42% and by sanitation services from 11% to 14%.20/ In the following two years, the rate of expansion fell considerably, particularly in urban areas.

About 14.5 million people included in the goals established for drinking water supply at the beginning of the Decade, had not been provided with drinking water supply by 1985, while 27.6 million people had not been provided with sewerage or excreta disposal services (table 7). The shortfall tends to be higher in rural than in urban areas and for sewerage and excreta disposal facilities than for drinking water supply. In order to achieve the targets originally adopted for 1990, Latin American and Caribbean countries would have had to increase the average number of people receiving new services each year by 49% in respect of urban water supply, by 164% in respect of rural water supply, by 180% in respect of urban sanitation and by 35?% in respect of rural sanitation during the second half of the Decade.

Table 6

LATIN AMERICA AND THE CARIBBEAN:
POPULATION WITH DRINKING WATER SUPPLY AND SANITATION SERVICES, DECEMBER 1985

(Population in millions)

Country	Drinking water supply									Sewerage & excreta disposal facilities					
	Total population served (easy access or house connections)		Urban population served					Rural population served (easy access or house connections)		Total population served	(%)	Urban population served	(%)	Rural population served	(%)
	Number	(%)	With house connections	(%)	Easy access	Total	(%)	Number	(%)						
Argentina	16.86	55	15.600	60	0.4a/	16.000	62	0.860	18	21.050	69	19.300	75	1.750	37
Barbados	0.24	93	0.087	81	0.002	0.089	83	0.146	100	0.1a/	40	0.100	93	0	0
Bolivia	2.75	43	2.110	69	0.200	2.310	76	0.440	13	1.340	21	1.020	33	0.320	10
Brazil	103.44	76	79.900	81	2.910	82.810	84	20.630	56	32.500	24	32.1a/	33	0.400	1
Colombia	25.19	88	13.970	72	4.110	18.080	93	7.110	76	18.590	65	17.340	90	1.250	13
Costa Rica	2.11	81	1.295	100	0	1.295	100	0.810	62	2.165	83	1.295	100	0.870	67
Chile	10.53	87	9.540	95	0.410	9.950	99	0.580	29	10.140	84	10.060	100	0.080	4
Dominican Republic a/	3.67	59	1.820	52	0.960	2.780	80	0.890	32	1.600	26	1.340	39	0.260	9
Ecuador	5.34	57	3.710	76	0.220	3.930	80	1.410	31	6.080	65	4.760	97	1.320	29
El Salvador	2.58	46	1.510	70	0.110	1.620	75	0.960	28	2.970	53	1.940	89	1.030	30
Guatemala	2.87	36	1.830	57	0.330	2.160	68	0.710	15	1.820	23	1.220	38	0.600	13
Guyana	0.58	60	0.307	100	0	0.307	100	0.270	42	0.637	67	0.307	100	0.330	51
Haiti	2.00	30	0.450	25	0.380	0.830	46	1.170	24	1.100	17	0.590	33	0.510	11
Honduras	2.00	46	0.550	31	0.260	0.810	46	1.190	45	1.250	29	0.350	20	0.900	34
Mexico	65.53	83	37.450	68	16.230	53.680	98	11.850	49	44.860	57	41.700	76	3.160	13
Nicaragua	1.57	48	1.300	70	0.120	1.420	77	0.150	11	0.880	27	0.650	35	0.230	16
Panama	1.76	81	1.040	91	0.050	1.090	95	0.670	65	1.720	79	1.080	94	0.640	62
Paraguay	0.80	22	0.590	36	0.030	0.620	38	0.180	9	2.850	77	1.050	64	1.800	88
Peru	10.35	53	7.620	57	1.530	9.150	69	1.200	19	9.290	47	8.400	63	0.890	14
Suriname	0.32	86	0.171	100	0	0.171	100	0.150	74	0.247	66	0.171	100	0.076	37
Trinidad & Tobago	1.11	94	0.671	89	0.086	0.757	100	0.357	83	1.114	94	0.757	100	0.357	83
Uruguay a/	2.47	82	2.190	86	0.140	2.330	91	0.140	30	1.740	58	1.440	56	0.300	65
Venezuela a/	14.22	82	11.250	75	0.660	11.910	79	2.313	100	7.470	43	7.270	48	0.200	9
Totals	278.285	72	194.961	73	29.138	224.099	84	54.186	45	171.513	44	154.240	58	17.273	14

Source: Estimated on the basis of information from the Pan American Health Organization and the Latin American Demographic Centre.

Note: The discrepancy in some totals is due to approximation in the decimal fractions, and, in some cases, to lack of data.
a/ - data for 1985 have not been available, data for 1983 were used.

Table 7

LATIN AMERICA AND THE CARIBBEAN: RESULTS OF THE FIRST FIVE YEARS IN COMPARISON WITH THE GOALS OF THE DECADE

(Population in millions)

Subsector	Additional population		Population actually served as percentage of the population to be served	Estimated shortfall
	To be served 1981-1990	Actually served 1981-1985		
Water supply	119.3	45.2	37.9	14.5
- urban	97.5	39.2	40.2	9.6
- rural	21.8	6.0	27.5	4.9
Sanitation	108.9	26.8	24.6	27.6
- urban	86.7	22.8	26.3	20.5
- rural	22.2	4.0	18.1	7.1

Source: ECLAC estimates.

Note: The discrepancy in some totals is due to rounding. Estimated shortfall in service has been calculated on the basis of the assumption that in 1985, 50% of the additional population to be served during 1981-1990 should have been served.

The Pan American Health Organization has recently estimated that the investments made during the first five years of IDWSSD amounted to US$7.7 billion at constant 1985 prices.21/ In average annual terms, investments in drinking water supply and sanitation were about 150% higher than during the 1960s but equal to or lower than such investments in the 1970s. External funds are estimated to have increased slightly, accounting for 30% of total investments during the 1981-1985 period, which is, however, still below their share of about 36% in the 1960s.

Estimates made on the basis of average per capita costs and the number of people provided with drinking water supply and sanitation services suggest that the cost of facilities built during the first half of the Decade was approximately US$9.0 billion at constant 1985 prices. Some US$5.1 billion, or 56.7%, of this cost is accounted for by urban drinking water supply, US$700 million or 7.8% by rural water supply, US$2.9 billion or 32.3% by urban sewerage or excreta disposal facilities and slightly less than US$290 million or 3.2% by rural sanitation.

During the first half of the Decade, average annual investments represented only about 71% of those required to reach the goals for the Decade.22/ This shortfall was most marked in the area of sewerage and excreta disposal facilities. This means that the countries of Latin America and the Caribbean will have to increase their investments by about 84% during the second half of the Decade in order to meet the goals for the Decade.

There is no evidence that such an increase can be achieved. The general cutting back of investment, the reduction in the activities of the public sector and the high rates of inflation in many countries are in fact indirect evidence that in the region as a whole levels of investment in water supply and sanitation have fallen further than in the first half of the Decade. There is evidence of a close relationship between the level of investment in water supply and sanitation facilities and the general level of gross investment. Failure to reach the goals set has been the most marked in those countries in which gross investment has fallen the most.

III. A CRITICAL REVIEW OF THE DECADE IN THE REGION: THE LACK OF PROGRESS AND ITS CAUSES

There are various reasons for the lackluster performance of the sector and for the failure to meet the targets set in 1980. Some are specific to the particular circumstances of the 1980s while others relate to longer-term weaknesses in the organization of the provision of drinking water supply and sanitation in Latin America and the Caribbean. For example, the dearth of properly trained personnel and the need to strengthen the institutions of the sector have long been recognized. At the same time the financing of water supply and sanitation remains too dependent on sources external to the sector itself. It is clear that the bulk of financing will have to be met from the proceeds from the provision of services. Unfortunately, few water supply and sanitation utilities have adequate tariff structures and cost-recovery policies.

The failure to expand the provision of services in line with the targets established at the beginning of the Decade has been compounded by the fact that full use is not made of existing facilities. The region offers too many examples of serious neglect of maintenance, which leads to poor functioning and repeated breakdowns. Particularly important in this respect is the widespread failure to control losses from distribution systems.

1. The financial restraint

At the beginning of the Decade, it was obvious that for many countries in the region, the achievement of the goals of the Decade and even of specific national targets would depend very much on the amount of financial resources made available. The fact that the Decade had been proclaimed implied that investments in drinking water supply and sanitation had been given even higher priority than during the 1960s and 1970s.

It was estimated that for the region as a whole the level of investments required to achieve the targets set for the Decade by the countries in 1980 if conventional technology used was about 1.5 to 2.5 times the level of investments made between 1970 and 1977.23/ In some of the poorer countries, that coefficient would of course be very much higher. It was believed that such increases in the amount of investment, could be achieved in most countries of the region 24/ but that some countries, particularly the smaller and poorer ones, would fail to meet the target set.

It was also concluded that the bulk of the required financing would have to be found within the countries themselves. External sources of finance could not be expected to provide more than a modest proportion of the capital required. At the end of the 1970s the contribution to the sector from outside was equivalent to only 8% of the total cost of providing water supply and sanitation services and was heavily concentrated in loans to support investment in conventional drinking water and sewerage systems in the metropolitan areas of the larger countries of the region.25/

2. The impact of the negative economic climate

The 1980s began well for Latin America and the Caribbean with incomes reaching their highest levels in 1980 and 1981. In 1982 economic activity began to decline steeply, which caused a sharp drop in social spending. During the period 1981-1989, the average annual rate of economic growth has been only 1%, which is lower than the growth rate of population with the result that per capita income has declined for the region as a whole (table 8). A serious effect of the economic crisis has been the reduction in the levels of public expenditure. It was recently estimated that per capita social spending in real values had fallen absolutely in the majority of Latin American and Caribbean countries.26/

Levels of investment have also experienced a decline which has surpassed the drop in gross domestic product. In many countries total investment has been cut in half as compared to the peak reached at the beginning of the 1980s. Such a fall in investment has obviously been felt in the drinking water supply and sanitation sector. Moreover, it can be assumed that the drop in capital investment has affected not only the expansion of water supply and sanitation facilities but also the maintenance of existing systems.

Table 8

LATIN AMERICA AND THE CARIBBEAN: PER CAPITA GROSS DOMESTIC PRODUCT, AT CONSTANT MARKET PRICES

(Dollars at 1980 prices)

Country	1970	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988 a/
Argentina	2 747.5	2 905.0	**3 009.8**	2 755.9	2 558.1	2 586.2	2 606.6	2 455.6	2 563.4	2 570.8	2 462.8
Barbados	2 725.9	2 674.8	3 406.8	3 326.8	3 155.2	3 154.2	3 256.0	3 274.7	3 431.9	3 480.1	**3 588.0**
Bolivia	722.0	**825.1**	786.4	772.8	719.6	655.0	635.6	617.6	583.3	581.3	581.3
Brazil	1 128.1	1 633.6	2 049.3	1 934.8	1 908.5	1 821.6	1 883.0	1 996.6	2 112.5	**2 128.0**	2 076.9
Chile	2 120.4	1 769.6	2 314.2	**2 395.0**	2 046.9	2 001.6	2 086.6	2 101.7	2 177.2	2 256.8	2 376.4
Colombia	920.5	1 085.6	1 259.2	1 260.3	1 246.0	1 242.5	1 262.3	1 282.4	1 329.6	1 372.8	**1 392.0**
Costa Rica	1 200.8	1 403.0	**1 552.1**	1 470.5	1 323.8	1 319.9	1 383.0	1 354.6	1 387.3	1 411.5	1 418.6
Dominican Republic	748.4	1 011.0	1 130.2	1 146.9	1 133.9	**1 162.7**	1 139.4	1 092.1	1 100.9	1 161.9	1 145.6
Ecuador	754.7	1 200.5	1 414.5	**1 426.2**	1 401.0	1 344.5	1 368.6	1 394.5	1 401.6	1 244.0	1 358.4
El Salvador	719.6	**821.0**	772.8	698.9	653.2	651.5	660.1	663.2	655.6	661.0	649.8
Guatemala	856.3	978.4	**1 127.9**	1 107.2	1 040.1	983.7	956.6	924.6	900.9	902.9	909.2
Guyana	653.2	**708.3**	611.7	595.8	520.8	459.8	461.4	457.5	450.1	445.1	424.6
Haiti	197.2	215.3	**258.4**	247.0	234.2	231.5	228.3	225.2	222.4	216.9	211.3
Honduras	558.6	574.1	**681.8**	663.4	627.7	604.9	597.9	586.5	581.4	586.5	590.6
Jamaica	**1 602.0**	1 569.0	1 213.6	1 227.7	1 209.7	1 214.5	1 187.4	1 105.6	1 116.4	1 162.6	1 151.0
Mexico	1 778.8	2 066.3	2 498.3	**2 651.2**	2 571.2	2 404.8	2 433.6	2 439.3	2 290.1	2 270.8	2 245.8
Nicaragua	973.5	**1 063.5**	746.8	762.1	731.4	739.9	704.1	652.9	627.3	616.9	548.4
Panama	1 377.7	1 497.7	1 766.4	1 796.9	**1 844.9**	1 804.0	1 757.9	1 803.2	1 826.9	1 827.7	1 475.0
Paraguay	752.0	932.2	1 292.5	**1 361.4**	1 307.2	1 228.3	1 228.5	1 239.0	1 198.2	1 215.6	1 259.4
Peru	1 065.9	1 180.5	1 190.0	**1 209.5**	1 181.8	1 015.8	1 036.7	1 034.0	1 098.0	1 140.1	1 015.8
Trinidad & Tobago	3 690.8	4 529.4	**5 318.2**	5 221.6	5 158.1	4 385.9	4 104.6	3 970.6	3 760.1	3 455.5	3 286.2
Uruguay	1 791.0	1 991.0	2 416.7	**2 435.3**	2 175.7	2 031.1	1 990.4	1 978.9	2 102.6	2 197.4	2 184.2
Venezuela	**4 694.7**	3 597.9	3 377.2	3 242.5	3 112.2	2 860.9	2 741.9	2 702.5	2 810.1	2 818.4	2 857.9
Average	1 516.6	1 757.9	**2 038.8**	2 005.4	1 935.9	1 844.2	1 870.3	1 896.2	1 926.8	1 933.5	n/a

Source: ECLAC.

Note: Figures in bold indicate peak levels of per capita gross domestic product. a/ - preliminary information. n/a - information has not been available.

IV. GOALS REMAINING FOR THE 1990s

If the trends noted during the first half of the Decade continue, the targets will clearly not be met. It is equally clear that the conventional approach to the provision of drinking water supply and sanitation will not yield adequate results in the near future, particularly in the poorer sectors of the population. The need to give serious consideration to what can be done is widely recognized. As an urgent matter of priority, attention must be turned to the need to increase services, especially services to the lower income groups; to make the sector less dependent on the ups and downs of the economy as a whole and of the public sector, in particular, and to correct existing imbalances in the distribution of investments.

1. Institutional innovation and sector management

The idea that innovation is required in four areas --sector administration, system management, tariffs, and technology-- and that these factors need to be taken into account in any effort to improve the provision of services to the poor is generally accepted. Specific requirements for change in each area are beyond the scope of this paper, but it may be suggested that in all the countries, the following changes should be incorporated into the policies governing the drinking water supply and sanitation sector.

i) Greater administrative decentralization;
ii) more businesslike system management;
iii) the adoption of a tariff structure that will permit the generation of enough revenue to cover capital costs as well as operating and maintenance costs;
iv) the wider use of cost-minimizing technology.

None of these proposals are new. They have all been made before and are being implemented in various countries. They are included in this paper as a reminder that change is a long complex process to which a forceful innovative approach must be taken. There is every reason to renew the recommendation for the next decade.

2. Improved incorporation of the poor

It is not readily evident that the poor have benefited in any general or particular way from the programmes executed during the International Drinking Water Supply and Sanitation Decade in Latin America and the Caribbean. The statistics on the growth of coverage show only a marginal increase in the provision of services to the rural population. Moreover, much of that increase has benefited the inhabitants of larger villages. Statistics specifically relating to the provision of water supply and sanitation to the urban poor are not available, but the slight increase in the number of urban households with house connections for water supply and/or sewerage suggest that the poor have not been provided with improved facilities. This conclusion is supported by sporadic and indirect evidence, such as the continuance of very high rates of infant mortality.27/

More emphasis needs to be given to the provision of the poor with water supply and excreta disposal facilities. This effort would include the development and introduction of cost-minimizing technologies, increased community participation, clarification of the role of sector agencies and, in general, the incorporation of policies that favour increased attention to the poor. A wide scope of action is also open to international finance and technical co-operation agencies and other institutions.

3. Technological innovation

Although it can justifiably be claimed that conventional technology based on piped systems served the Latin American and Caribbean countries well in the expansion of services after 1961, the reduction in the rate of expansion of services in more recent years in most countries of the region raises questions about the wisdom of continuing policies now being applied. There is a need to reconsider the approach being taken and to introduce innovations, in the means of delivery of drinking water supply and sanitation services, particularly in the form of cost-minimizing technologies. The priority areas for such innovation are marginal urban and rural areas where present technologies are considered to be largely incompatible with the human, financial and management resources available and with present service demands.28/

At the same time, as new technologies are applied, greater efficiency should be sought in the operation and maintenance of existing systems. In particular, considerable effort should be made to ensure that the costs of operation and maintenance are met from revenues at all times. It is essential for revenues to be protected from inflation, and the means for achieving such protection should be sought and applied.

V. CONCLUSIONS

The conclusions that can be drawn from this short review of the achievements in the drinking water supply and sanitation sector development in Latin America and the Caribbean are the following:

i) Investment in drinking water supply and sanitation in most Latin American and Caribbean countries has been seriously reduced by the general economic recession prevailing in the region since 1981.

ii) The pattern of investment in the sector is seriously unbalanced, and this has been unfavourable to the provision of sewerage and excreta disposal services and is reflected in a total failure to develop sewage treatment.

iii) The shortage of resources available to the sector has curtailed both the expansion of services and the maintenance of existing systems.

iv) The impact of the reduction of resources has been felt most severely by lower-income groups, in both rural and urban areas.

v) In several countries large metropolitan areas absorb a disproportionate share of resources and in particular of external loans.

vi) If universal provision of drinking water supply and sanitation is to be achieved and maintained, it will be essential to renew and extend the commitment to the sector entered into at the beginning of the International Drinking Water Supply and Sanitation Decade.

Notes

1/ Pan American Health Organization/World Health Organization, Environmental Health Programme, International Drinking Water Supply and Sanitation Decade, Regional Progress Report, Environmental Series No. 6, p. 4.

2/ Pan American Health Organization, Pan American Sanitary Bureau-Regional Office of the World Health Organization, Health conditions in the Americas, 1961-1964, Scientific Publication No. 138, August 1966, p. 115.

3/ Secretariat for the Regional External Support Consultation: HPE/Pan American Health Organization, America's regional resource mobilization profile, Regional External Support Consultations, 21-24 April 1986, Washington, D.C. (Resource mobilization for drinking water and sanitation in the Americas), April 1986, p. 9.

4/ Growth of gross domestic product at market prices averaged 5.7% during the 1960-1970 period, according to Economic Commission for Latin America and the Caribbean, Statistical yearbook for Latin America and the Caribbean, edition 1985 (LC/G.1420), August 1986, p. 145.

5/ Estimated on the basis of information in Organización Panamericana de la Salud, Oficina Sanitaria Panamericana, Oficina Regional de la Organización Mundial de la Salud, Informe anual del director 1971, agosto de 1972, Documento Oficial Nº 116, p. 53. The amounts of investments stated in this publication have been inflated by the United States Capital Equipment Price Index (International Monetary Fund, International Financial Statistics, Yearbook 1987, pp. 698-699).

6/ Estimated on the basis of information from Pan American Health Organization, Latin American Demographic Centre, and the Inter-American Development Bank.

7/ International Drinking Water Supply and Sanitation Decade, op.cit., p. 4. Information on coverage is for 1971.

8/ America's regional resource mobilization profile, op.cit., pp. 9 and 11; and World Health Organization, World health statistics report, vol. 29, No. 10, 1976, pp. 553-554.

9/ Estimated and/or calculated on the basis of information in World health statistics report, op.cit., pp. 546, 553-555, and 591-592.

10/ Growth of gross domestic product at constant market prices averaged 5.5% during the 1970-1980 period, according to Economic Commission for Latin America and the Caribbean, Statistical yearbook for Latin America and the Caribbean, edition 1988 (LC/G.1550-P), February 1989, p. 64.

11/ Estimated and/or calculated on the basis of information in various PAHO publications, including official documents No. 136, 158 and 183. These figures do not coincide with those given in International Drinking Water Supply and Sanitation Decade, op.cit., p. 19. The amounts of investments have been inflated by the United States Capital Equipment Price Index (International Financial Statistics, op.cit., pp. 698-699).

12/ Estimated on the basis of information from Pan American Health Organization, Latin American Demographic Centre, and the Inter-American Development Bank.

13/ United Nations, Report of the United Nations Water Conference, Mar del Plata, 14-25 March 1977, New York, 1977, p. 68.

14/ International Drinking Water Supply and Sanitation Decade, op.cit., p. 5.

15/ Estimated and/or calculated on the basis of information in International Drinking Water Supply and Sanitation Decade, op.cit., pp. 21-23.

16/ This estimate has been made on the basis of the number of population provided with respective services in 1980 and to be provided in 1990, and unit per capita costs corresponding to 1985. In the cases where information for the year in question was not available, information for the nearest year was used. In several cases estimates have been used. There are several estimates of the IDWSSD costs, including: Pan American Health Organization has recently put the IDWSSD cost at US$30 113 billion (International Drinking Water Supply and Sanitation Decade, op.cit., p. 6); see also United Nations, Economic Commission for Latin America and the Caribbean, Drinking water supply and sanitation in Latin America, 1981-1990, June 1983 (E/CEPAL/G.1238), Estudios e Informes de la CEPAL, Nº 25.

17/ The estimate of recurrent costs is taken from International Drinking Water Supply and Sanitation Decade, op.cit., p. 6.

18/ Pan American Health Organization, Drinking Water Supply and Sanitation Decade: The International Decade in the Americas, Environmental Series No. 3, 1983, p. 59.

19/ These figures are taken from Economic Commission for Latin America and the Caribbean, Statistical yearbook for Latin America and the Caribbean, edition 1988 (LC/G.1550-P), February 1989, pp. 64-65.

20/ America's regional resource mobilization profile, op.cit., p. 12.

21/ International Drinking Water Supply and Sanitation Decade, op.cit., p. 25. The amounts of investments have been inflated by the United States Capital Equipment Price Index (International Financial Statistics, op.cit., pp. 698-699).

22/ According to another recent estimate (Naciones Unidas, Departamento de Cooperación para el Desarrollo, Factores legales e institucionales que afectan la implementación del Decenio Internacional de Agua Potable y Saneamiento en América Latina y el Caribe, Documento Nº 20, Seminario Regional sobre Agua Potable y Saneamiento para Grupos de Bajo Ingreso en Comunidades Rurales y Urbano-Marginales, Recife, Palace Hotel, 29 de septiembre-5 de octubre de 1988, p. 3), total 1981/1985 investments amounted to US$7 383.6 million, at constant 1983 prices, and average annual investments were only some 50% of the estimated annual investment requirements.

23/ Drinking water supply and sanitation in Latin America, 1981-1990, op.cit., p. 91.

24/ Ibid., pp. 95-98.

25/ Ibid., p. 98.

26/ United Nations, Economic Commission for Latin America and the Caribbean, The dynamics of social deterioration in Latin America and the Caribbean in the 1980s, Note by the Secretariat, Regional Preparatory Meeting for the Eighth United Nations Congress on the Prevention of Crime and the Treatment of Offenders, San José, Costa Rica, 8 to 12 May 1989 (LC/G.1557), 3 May 1989, p. 13.

27/ A detailed review of the problems affecting the provision of drinking water supply and sanitation services for the poor in Latin America and the Caribbean is to be found in United Nations, Economic Commission for Latin America and the Caribbean, Water supply and sanitation for the poor: the achievements of the International Drinking Water Supply and Sanitation Decade in Latin America and the Caribbean (LC/L.481), 8 November 1988.

28/ America's regional resource mobilization profile, op.cit., p. 19.